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The Advertising Nuisance.

THE abuse of natural scenery for advertising purposes has long been one of the most abominable of public nuisances. It has now become so flagrant in its atrocities as to be intolerable. There is hardly any section of the country where it can be escaped. In city suburbs, along rural highways, parkways and nearly every line of railway in the land the landscape is marred by the advertising fiend. It is a serious question how this nuisance can be suppressed. Bowlders, ledges, cliffs, fences and buildings are painted over with hideous letterings, and quiet meadows are defaced by gigantic signboards. Journeys, whose chief interest used to consist in the enjoyment of scenery from car windows, are converted into nightmare pilgrimages. Scenery in travel has thus lost a great part of its charm; the lover of natural beauty can only be secure in his enjoyment by selecting some spot, if he can, where such things do not intrude, and resolutely staying there.

There are laws on the statute books of several states prohibiting the use of natural scenery for advertising purposes. Where there chances to be local interest in the subject sufficient to see that these laws are enforced they serve their purpose to a limited extent. But, as a rule, there is nobody whose duty it is to enforce them. Protests are loud enough, and they indicate a widespread public sentiment against the nuisance; but there is seldom any one who will take the trouble to bring complaint against the offenders. In a few places rural improvement societies have taken the matter in hand, and conditions are bettered correspondingly; in others the local officials have been required by public sentiment to enforce the law, with gratifying results. The main trouble is, however, that the scope of these laws is not sufficiently broad to meet the extensions of the evil that mark the more recent methods of the landscape-advertiser. Nevertheless, encouraging indications of changes for the better are to be noted in certain enactments and in efforts to secure such legislation as will effectively deal with the trouble. Some of these are mentioned in the latest report of the Massachusetts Trustees of Public Reservations. The standing committee of the trustees has observed during the past year several marked signs of general disgust at the doings of advertisers: "For example, the state of New York has passed an act granting powers to the Park Department of the city of New York which will enable them to control all advertising within 350 feet of any public park or parkway. The Boston Metropolitan Park Commission proposes to restrict its reservations by making the acceptance of a restriction forbidding advertising a condition precedent to the use of the park border-roads by adjacent land-owners. The Pennsylvania Railroad Company, by instituting cash prizes for the best-appearing properties along its lines, is competing with the advertisers with excellent results. The English society for checking the abuses of advertising is pressing a bill in Parliament, which, if enacted, will institute local option in this matter by empowering such communities as accept the provisions of the act to frame and enforce strict by-laws regulating the practice of public advertising."

It would be interesting to see how far the common law may protect the public in this matter. It is an axiom that moral right should be legal right as well. The law should embody the sentiment of the community in this respect, and it is probable that a powerful public sentiment would soon convert moral right into legal right. The modern extensions of the scope of the common law in relation to public nuisances indicate that the protection of the public in this regard is properly a function of that law. In equity no man has a moral right to use his property in any manner detrimental to public welfare. The law relating to public nuisances is based on this principle. Modern public sentiment now regards as public nuisances various actions which were once held to be well within the limit of individual rights, and the common law is interpreted accordingly. It has long been recognized that no person may be permitted to pollute the air and the water, for they are thus made detrimental to public health. Later the pollution of the ground was placed under the ban for the same reason. Later still it has been recognized that the nostrils and the ears of the community are entitled to protection in the same way. Foul smells and loud and discordant noises have therefore been adjudged public nuisances under the common law, and there is a goodly line of decisions to that effect.

Modern science demonstrates that the health is powerfully affected by the condition of the nervous system; all diseases are aggravated by undue drafts upon the nervous energy, or by abnormal excitement of the nerves. Health is protected by defending the ears against assaults that injure the nerves, and we have seen that the common law has been made to cover the general welfare in this regard. There only remains, therefore, one other great avenue of sense to be guarded. It seems clear that offenses against the vision may with equal justice be brought under the scope of the common law and thus be adjudged public nuisances. Irritations of the eye, caused by hideous objects, offend the senses in the same manner that hideous noises offend the ear and foul smells offend the nostrils. The nerves suffer in the one case as they do in the others, and public health is injured accordingly. The public has a vested right in the landscape, whether the land be a public or private possession, and no man should be permitted to transgress that right wantonly. A long line of precedents exists to indicate that there is no one sense which arbitrarily is not entitled to the protection enjoyed by the other senses.

In the case of offensive advertising in the neighborhood of a parkway, it is evident that such advertising is displayed to attract the attention of the people that frequent a public pleasure-ground. The action of the public in establishing a place for common recreation therefore gives opportunity for certain private individuals to make a profit at public expense and to the detriment of the public in its enjoyment of the recreative facilities thus created. Without the public pleasure-ground the adjacent lands would be worthless for advertising purposes. The public therefore has just cause to seek redress for the injury occasioned in diminishing the

value of its recreation-grounds for the purposes for which they were intended.

Railway corporations suffer in the same way. Many a railway has gone to very heavy expense in making known to the traveling public the scenic attractions of the country along its line. The railway has, perhaps, been built largely with the purpose of developing and making accessible these attractions. The fact that the public has been drawn to patronize such a route of travel gives value to the neighboring lands, and when such lands are used by the persons owning or hiring them in a way which is a detriment to the parties that give them value—both the railway company and the traveling public—the company is clearly injured in its property rights as well as the public in its common rights, and they therefore have just cause to seek redress for damages inflicted.

The case of a public road is similar. The facilities created by the public for its own convenience are what has given the value to abutting property. This being used for advertising purposes to the public harm, the public has cause to seek redress. The park authorities, the railway company, the authorities representing the public in its ownership of the highway; these, as well as any individuals, should be sustained in a case in equity against offensive advertising as a common nuisance.

In Massachusetts the public park laws authorize park commissions to take, by right of eminent domain, not only lands, but rights in lands. It is clearly within their jurisdiction, therefore, to take such easements in lands about public parks and parkways as will forbid their use for offensive advertising purposes. The damage sustained by land-owners in such takings could not be material, for whatever profit they might gain by putting their property to such use would be enormously offset by the damage inflicted upon public rights through such use. This should be an effective weapon, in addition to the restrictions already alluded to as imposed by the Boston Metropolitan Park Commission.

It has been suggested that persons offended by obnoxious advertising unite in boycotting the wares thus advertised. Unfortunately there is too large a part of the public indifferent to such considerations, and advertisers would hardly be induced to reform their ways for fear of the consequences. A concern, however, could not advertise itself to better advantage than by announcing in the public prints, "The advertisements of these goods are not used for defacing natural scenery!" It would constitute a badge of respectability.

Notes on Cultivated Conifers.—III.

THE first of the genera of Coniferæ (Tribe Cupressineæ) which we shall consider in these notes, Juniperus, is well characterized by its subulate or scale-like leaves, dicœcious, axillary or terminal flowers, the staminate with numerous stamens arranged on a central axis, the pistillate of many scales, each bearing one or two erect ovules and becoming thick and succulent and forming a berry-like strobile at maturity. Of the three sections in which botanists have grouped the species of Juniperus only Oxycedrus and Sabina need interest us here, as the single species of Caryocedrus, Juniperus drupacea, distinguished by its capitate staminate flowers and united seeds, will not probably prove hardy in our region, although Mr. Hoopes states in his *Book of Evergreens* that it succeeds in the neighborhood of Philadelphia. It is a small bushy tree, rarely thirty feet in height and rather widely scattered from Greece to northern Syria on mountain slopes, between two thousand and five thousand feet above the sea-level, sometimes forming open forests or often mingled with Oaks and Pines. The blue, fleshy, succulent berries of this tree, which are often nearly an inch in diameter, are said to be edible. In the other sections of Juniperus, where we are to find garden plants for the north, there are about thirty-five species, widely and generally distributed through the subarctic and temperate regions of the northern hemisphere, being, however, most abundant in countries of small rainfall. They are very common in the arid south-western part of the United States and in northern Mexico, and in the countries bordering the Mediterranean, the largest number of species being segregated in these two regions. Junipers are scattered also from the Arctic Circle to the Bermuda and West Indian Islands, the Atlantic Islands, east tropical Africa, the Himalayas, and over eastern Asia, although it is only in arid or comparatively arid regions that they are numerous enough to be really conspicuous features of vegetation.

Junipers produce durable fragrant wood much used for posts and in the manufacture of many small articles, and the bark of many of the species contains sufficient tannic acid to make it valuable as a tanning material. In the fruit there is an essential aromatic oil used since ancient times in medicine; to Juniper fruit gin owes its peculiar flavor, and from the young leaves and branches of an Old World species savin oil is distilled.

Of the section Oxycedrus with seven or eight species, distinguished by axillary flowers, and ternate linear acicular leaves joined only at the base and white-glaucous on the upper surface, the most generally known species, Juniperus communis, is more widely distributed than any other tree or shrub of the northern hemisphere and in many forms has been cultivated for centuries in northern gardens.

In America this plant is distributed from the Arctic Circle on the Atlantic coast to the hills of Pennsylvania, to northern Nebraska, along the Rocky Mountains to western Texas, New Mexico and northern Arizona, and from Alaska to northern California; in Europe it is common all over the northern and central parts of the continent, and occurs on the mountains of the Mediterranean basin; it is spread over northern, central and eastern Asia, extending southward to the north-eastern Himalayas and by the way of the Kurile Islands and Kamtchatka nearly completes the earth's circle.

In the north-eastern states Juniperus communis is a rather common inhabitant of stony hillsides, where it makes broad masses of stout stems three or four feet high, spreading near the base and then ascending; at high elevations in the western part of the continent and far northward the stems are still more prostrate, forming close mats, and the leaves are often short and broad (var. Sibirica); and it is only on the bold and broken summits of conglomerate sandstone and limestone hills in one district of southern Illinois that this Juniper attains the habit and size of a small tree, although in central Europe it is often tree-like in its habit of growth.

The common hillside form of Juniperus communis is useful in forming low masses of evergreen foliage, or, grown singly, it will soon make a handsome specimen, which in time will become several yards in diameter. It is, of course, perfectly hardy, and small plants can generally be found in old New England hill pastures and easily transplanted into the garden. A variety of this plant with bright yellow leaves and branches, which was first propagated and distributed a few years ago by the late Robert Douglas, of Waukegan, Illinois, is now frequently planted by the admirers of such abnormally colored plants.

Of the European forms of this species the most distinct is the Swedish Juniper (var. Suecica), a plant with erect branches forming a narrow, compact pyramidal head, and occasionally eighteen or twenty feet high. This is one of the few strictly pyramidal conifers which are really hardy in New England, and it can be safely used here in formal gardens or wherever it is desirable to produce the peculiar effects which can only be obtained with pyramidal plants. Another fastigiate form of the common Juniper, the so-called Irish Juniper (var. Hibernica), with rigid erect branches clothed with short deep green leaves, is a favorite European garden plant; but in this country it is not very hardy, even in the neighborhood of Philadelphia.

The Polish Juniper (var. Cracovica) is a robust and hardy plant with abundant foliage and pendulous terminal

branchlets. More distinct than this last is an erect form of general pyramidal outline with delicate drooping branches and narrow leaves, usually known in gardens as Juniperus oblongo-pendula. This handsome plant is perfectly hardy in the neighborhood of Boston; it grows, however, very slowly, and in a quarter of a century, even in good soil, will hardly attain a height of six feet. For covering rock-work or for other positions where it is desirable to use an evergreen only a few inches high, the northern and alpine form of the common Juniper (var. Sibirica), with its wide-spreading stems pressed close to the ground, is an excellent plant, retaining its habit in cultivation and soon extending itself over a large area.

The other European species of the section Oxycedrus, which are small and not very important plants, are not hardy here at the north, but the Japanese Juniperus rigida can be grown in our gardens. Of rather more open habit, it is of the Juniperus communis type, although the branches are more slender and the leaves narrower and more elongated. On the Island of Hondo, where, although widely distributed at low elevations, it grows only on sandy barrens or dry sterile gravels, it is occasionally arborescent and twenty feet tall, but much more frequently remains low, forming a wide-spreading bush. This is the Juniper which the Japanese most frequently cultivate and which is often seen of large size and venerable appearance in their temple gardens.

Another Japanese species which may be expected to thrive in our gardens, Juniperus conferta, is a seashore plant which covers exposed sand-dunes with its long, stout, prostrate branches, and is distinguished in the dark green of its stout elongated leaves and in the size of its fruits, which are much larger than those of other Junipers of this section. This species was discovered by Charles Wright, the botanist of the Wilkes' Expedition, on the shores of Hakodate Bay, opposite the city of that name, on the Island of Yezo, where we have seen it growing in great abundance. In 1892 it was found by Mr. Veitch near Honjo, on the west coast of Hondo. *C. S. S.*

The Corsican Pine at Home.

THE prospect held out to us of a visit to the Corsican Pine forests was a tempting one. We remembered a reply made by a garde général in Corsica to the directors of the exhibition of 1867: "Impossible to send you, as you ask, sections of the trunks of our tallest Laricios; our longest saws are shorter than the diameters of our great trees." Then there were the more recent impressions got from the accounts of travelers in Corsica, and eloquent descriptions, concluding with the inevitable advice to "make haste if we wished to see really ancient trees and forests in their natural state." An excursion to Corsica was planned in the spring of 1897, but for various reasons the original band was reduced to four. These found their way to Ajaccio under the guidance of a Corsican, by adoption if not by birth, Monsieur Doumet-Adanson, who was so suddenly stricken by death after our return to France. In Ajaccio we were cordially welcomed by the Conservator of Forests, who gave us some valuable information on the present condition of the Pine forests. Monsieur Mabaret also insisted upon planning out an itinerary for us, which enabled us to see the best examples of Laricio in the limited time allowed to us.

The majority of the Corsican Pine forests are very easily approached to-day, the department of Bridges and Highways having constructed some marvellous roads, but there are other forests situated in remote valleys which are still only to be reached by way of mule-paths and goat-tracks. In these the largest trees, even when decayed, are still left standing, as their removal cannot be economically effected; also isolated trees situated in the rockiest and least accessible places remain intact for the same reason. Our party, which included one person already advanced in age and in delicate health, was not equipped for journeying over mule-paths and scaling goat-tracks; the finest forests within our reach were, therefore, those of Aitone, Valdoniello, Vezzano, Marmano and Bonifato, the first four being situated in the department of Corte, and the last in that of Calvi, and all intersected by good roads. Those which offer most readily to the eyes of the tourist the finest trees set in the most picturesque surroundings, are the forests of Valdoniello and Marmano. The vale of Asco is almost alone at the present day in being still able to show some ancient trees as yet untouched by the hand of the exploiter, but we were forced to abandon this part of our excursion, which, however, has a place in our plans for the future.

The finest specimens of Pinus Laricio we saw did not exceed 19 feet 6 inches in circumference. Trees of 14½ feet to 15½ feet in girth were frequent enough; some of these were more than 130 feet high, but the mean height of fine old trees is about 120 feet. In the forest of Marmano, near to the pass of Verde, the highest and also the best-shaped trees were to be found, the dimensions of these being 11½ feet to 14½ feet around, by 130 feet high. They grow in clumps by themselves or pretty thickly mixed with Beeches and a few Firs. The Laricio in Corsica is found on the slopes of mountains with a marked preference for a northern exposure. Commencing at about 2,950 feet, the limit of the Maritime Pine, it reaches an altitude of about 3,400 feet. At this point it becomes rare, not because it does not thrive at such an altitude, since fine specimens are also to be found at the extreme limit of the forests, but because these highlands are pasturage in summer for flocks of sheep and goats. Outside this high zone replanting from seed is very easy; the great danger to the young forest arises from the risk of fire during the hot, dry, summer months. In the older parts of the forest the risk of destruction by fire is less, the trunks of the trees being stripped of their lower branches and the underwood being generally choked off by Pine. The groups of trees are as close and as regular as in our continental forests of Picea and Silver Fir. This is especially so in certain parts of the Aitone forest, which is one of the most regular as regards growth. But the full picturesqueness of P. Laricio is best seen in the higher limits of the forests. Here the growth is sparser, because the conditions of existence are harder, but chiefly because the majority of the plants have been cut down by the sheep and goats. In its struggles with wind and snow the tree is not so high; the trunk thickens and throws out some powerful branches, the leader is destroyed, and the crest becomes flat and spreading. Looking at certain Laricios in the vicinity of the pass of Saint Pierre, between the limits of the Aitone and Valdoniello forests, it is difficult not to believe that they are Atlas Cedars, as these grow on the highest of the Algerian mountains.—*Maurice L. de Vilmorin.* Translated in *The Garden* from the *Revue Horticole.*

Autumn Flowers in the Pines.

AUTUMN flowers are this year unusually abundant in the Pines owing to frequent rains during the summer. Some of the spring flowers are also blossoming now, and trees are flowering for the second time. Magnolia glauca has shown occasional buds and blossoms throughout the entire summer. Handsome flowers of Rhexia Virginica and R. Mariana are still seen among their pretty urn-shaped seed-pods, and Ludwigia alternifolia and L. hirtella also mingle their symmetrical yellow flowers with their winged seed-boxes. The long wand-like stems of Decodon verticillata are here, too, with their curious trimorphous arrangement of stamens and styles. The relative of this plant, Lythrum Salicaria, originally from Europe, but well established in this country, also has two sets of stamens, one longer than the other, and the style is long on some plants, while on others it is short. This is evidently one of Nature's provisions for cross fertilization.

While some plants seem purposely designed to have the pollen carried to different individuals, others, like the stem-

less Violets, are specially adapted for close fertilization. The showy Violets of spring scarcely produce any seed, but depend on the underground flowers of autumn, which do not open at all, but push up their well-filled seed-pods direct from the earth, ripening and scattering the seed thickly over the ground. From one plant of Viola cucullata many forms of leaf and flower are produced. A few years ago I took a thrifty plant of this Violet from its wild home and planted it in the garden. The flowers were intensely blue, and they disappeared without forming seeds, but later the cleistogamous seeds were produced in abundance and little plants grew all about the parent. Many of these seedlings are altogether unlike the mother plant. Some have deep-lobed palmate leaves, other plants have smaller light-colored flowers, and there are many variations in leaf and blossom from the one plain-leaved, deep blue-flowered parent. As an experiment one of the seedlings with strikingly deep-lobed palmate leaves was isolated, and similarly varied forms resulted from the autumn seeds. The other two species with cut and divided leaves, V. pedata and V. pedatifida, do not have this sporting tendency, but remain true to the parent form. The handsome small white Violets, V. blanda and V. lanceolata, have borne their delicate flowers this month, not as profusely as in spring, but the occasional shy blossoms are particularly welcome as late as this in the season.

Polygala lutea is still in flower, as is P. sanguinea. Among the Milkworts are also some species which have concealed subterranean flowers as Polygala paucifolia and P. polygama; the latter species is quite abundant in the Pines. In late summer it bears erect spikes of handsome rose-colored flowers, as well as the hidden fruitful ones. Tephrosia Virginiana is delightfully fresh and luxuriant, and is now in bloom. The seeds of this plant and also those of the Wild Indigo, Baptisia tinctoria, have been almost wholly destroyed this season by a tiny weevil. The feathery white and flesh-colored spires of Meadow-sweet, Spiræa salicifolia, are still found in the damp Pines, and the flowers of many of the compositæ. Blue and purple Asters are abundant everywhere. The Golden-rods are past their prime, but good specimens of Solidago sempervirens, our most handsome species, are still found, with large thick shining leaves and fine heads with deep golden rays. Coreopsis grandiflora, after a rest of several weeks, has started afresh; its deep golden rays make it the most handsome of the genus, and it rivals C. lanceolata. Cone-flowers and Sunflowers are still here. The narrow-leaved Helianthus angustifolius, peculiar to our Pines, is full of bloom, and so is Chrysopsis Mariana. The flowers of Closed Gentian, Gentiana Andrewsii, as well as those of G. angustifolia, with large open corollas, are among our treasures in the damp Pines. But the glory of autumn is the ripening foliage of tree and shrub, which is now fast approaching its greatest splendor.

Vineland, N. J. *Mary Treat.*

New or Little-known Plants.

Spiræa arbuscula.

THIS handsome Spiræa is an alpine shrub with erect, wiry, branching stems terminating in small compact corymbs of bright rose-red flowers. Its affinities are with Spiræa lucida, which is a larger plant with looser corymbs of white or pale rose-colored flowers, and which grows at a low elevation in dry woods from the Black Hills of South Dakota to southern Alberta and eastern Washington, with Spiræa corymbosa of the southern Alleghanies and with the Siberian and eastern Asiatic Spiræa betulifolia. It differs from Spiræa lucida in its dwarfer habit, in its smaller and much more compact flower-clusters, in its bright red stems covered with thin lustrous bark annually exfoliating in thin scales, and in its smaller ovate-elliptical or obovate coarsely crenulate leaves, which, like the young shoots, are slightly puberulous on the lower surface at least while young.

Spiræa arbuscula* grows at Glacier, on the Selkirk Mountains, in British Columbia, and ranges southward along the Cascade Mountains and the high coast ranges of Washington and Oregon and along the Sierra Nevada of California to the centre of that range. On the Olympic Mountains in Washington it forms dense low mats at the timber-line at an elevation of 5,000 feet above the sea, while on Mount Ranier, on the opposite side of Puget Sound, it ascends 2,000 feet higher, enlivening in August rocky cliffs with its brilliant flowers.

This pretty and distinct plant (see illustration on page 413 of this issue) has been successfully introduced into the Arnold Arboretum, where it flowered freely last June, and promises to adapt itself to its new surroundings.

C. S. S.

Foreign Correspondence.

London Letter.

Vanda amœna.—Although described and certificated by the Royal Horticultural Society as a new natural hybrid between Vanda Roxburghii and V. cœrulea, I am inclined to believe this is nothing more than a form of the first-named species with flowers a trifle larger and clearer in color than those of the type. It has exactly the leaves and habit of V. Roxburghii as represented at Kew. Whether hybrid or variety, however, it is a pleasing Orchid; the flowers, which are borne in racemes, are two inches across, the sepals and petals checkered with yellow and dusty ferruginous purple, the three-lobed lip, with panduriform mid-lobe, being violet-purple. V. Roxburghii is one of the commonest of Orchids in Bengal and other parts of India as well as in Ceylon, and it appears to be variable as to the size and color of the flowers. The ordinary form was figured by Lindley in his *Botanical Register*, t. 506, from a plant flowered in Sir Joseph Banks' garden at Spring Grove in 1819. It is said to prefer the Mango as a host-tree in Bengal. The plant under notice was shown by Messrs. Linden, of Brussels.

Lælia pumila, var. Gatton Park.—Under this name a distinct and beautiful form of Lælia pumila received a first-class certificate last week. The type has rose-purple sepals and petals and a maroon-purple lip; the variety Dayana is darker in color with a white blotch on the lip, and that known as præstans has a trumpet-shaped lip with a yellow disc. There is also a form of the last præstans with ivory-white sepals and petals and another called delicata with nearly white segments. The new one differs from all these in having the sepals and petals of a pale blue shade, of that peculiar tint called French gray, while the color of the front portion of the labellum is rich blue-purple, with a patch of white in the centre. In the form of the labellum it resembles the variety præstans. This plant came from the collection of Mr. J. Coleman, Gatton Park, Reigate.

Dendrobium Phalænopsis.—While our Orchid-houses are now gay with the sprays of flowers of this lovely eastern Orchid it is satisfactory to see that the auctioneers are advertising sales of newly imported plump-bulbed plants of it by the thousand. It is emphatically a plant for every tropical collection. Any one who can grow Nepenthes or Ixoras or Anthuriums can manage Dendrobium Phalænopsis. Notable characteristics of this Orchid are the elegance of the sprays and the large number of flowers on each when the plants are strong, the variety of color and the delicate blending of the colors in the individual flowers. The close resemblance of the flowers to those of the beautiful Moth-Orchids, Phalænopsis, and the fact that these flowers remain fresh twice as long, all contributes to make it one of the very best Orchids in cultivation here.

Apera arundinacea.—A first-class certificate was awarded last week to a plant of this graceful Grass exhibited by

* Spiræa arbuscula, Greene, *Pittonia*, iii., 63 (1895).
Spiræa betulifolia, var. rosea, Gray, *Proc. Am. Acad.*, viii., 381 (not Spiræa rosea, Rafinesque) (1872).
Spiræa lucida, var. rosea, Greene, *Pittonia*, ii., 221 (1891).

Messrs. J. Veitch & Sons. The plant was in the form of a tuft of thin, rigid, erect culms about two feet high, clothed with narrow graceful foliage. It bore panicles of flowers from two to three feet long which drooped in the most elegant fashion, forming an airy plumose or tail-like cluster, colored pale brown tinged with pink. The panicles are so much longer than the culms that they trail on the ground unless the plant is elevated on a pedestal, in which position it is seen to advantage. This character may be abnormal, for, according to the description and figure of Apera arundinacea in Hooker's *Flora of New Zealand*, the panicle is erect and about a foot long: "A tall, erect,

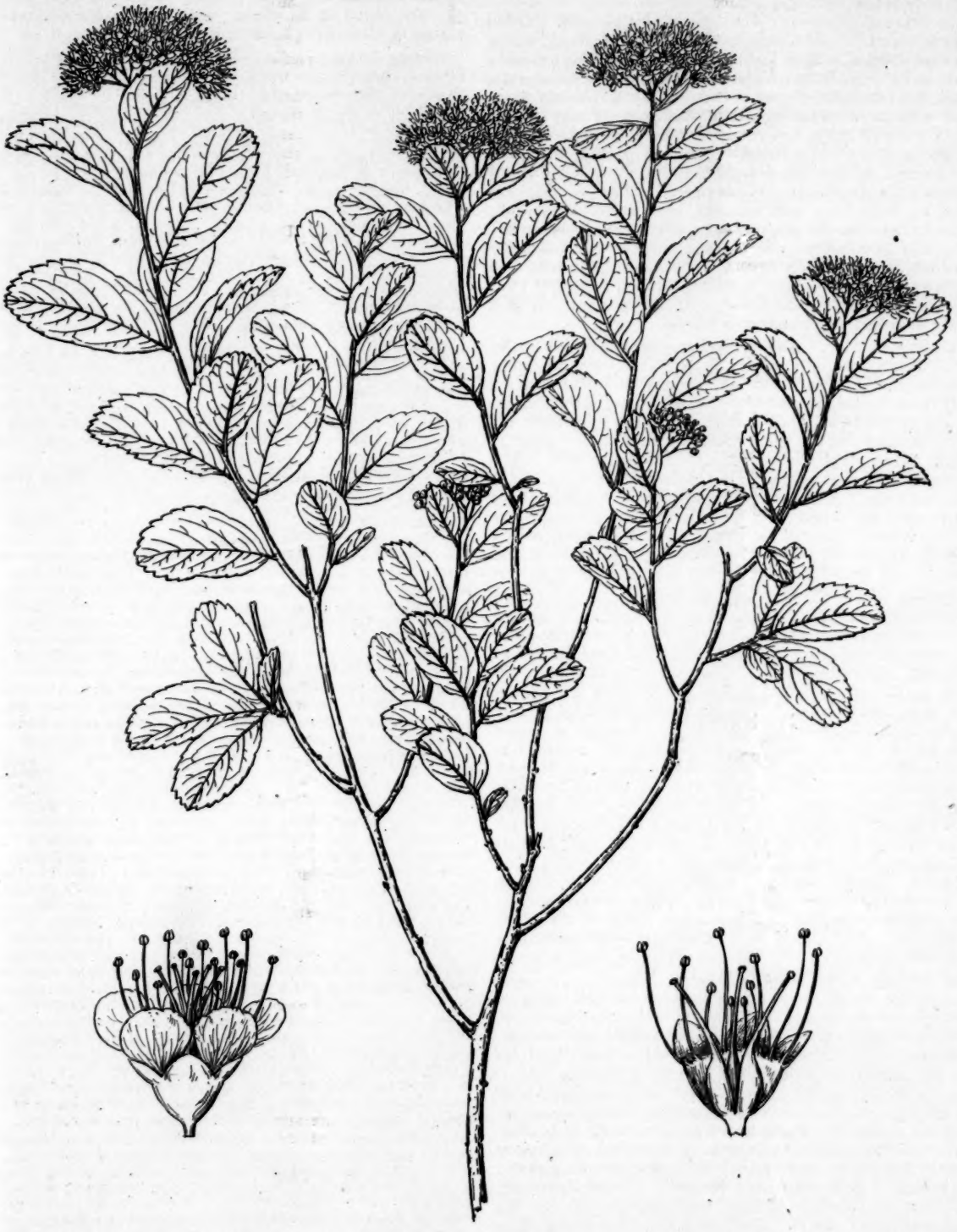

Fig. 53.—Spiræa arbuscula.—See page 412.

densely tufted, glabrous, most graceful grass. Culms reed-like two to five feet high. Panicle eight to sixteen inches long." It is a native of Northern Island, in New Zealand, and is also found in subtropical east Australia. The genus is closely related to Stipa.

Megacaryon orientale.—A figure of this new garden plant is given in *The Gardeners' Chronicle* this week, where it is described as a remarkable Boraginaceous plant, closely allied to Echium, from which it differs chiefly in the smooth, ovoid, not tubercled carpels. It forms a tall coarsely hairy plant with large-spreading oblong-lanceolate basal leaves, and a central leafy flower-scape four feet high bearing numerous flowers in a loosely-branched pyramidal cyme, as in some of the species of Echium from the Canary Islands; for instance, E. candicans. The flowers are about an inch long and as wide, with a five-lobed limb, colored pink with purplish streaks. The genus is monotypic and is a native of Turkish Armenia. It has lately flowered in the garden of Mr. W. B. Boyd, Melrose, who obtained it six years ago, and it has been growing ever since in a rockery border in rather heavy loam. It is a stately plant for the herbaceous border.

Crassula Cooperi.—This dwarf species has small fleshy leaves which become tinged with purplish crimson under the influence of bright sunshine. In the autumn it flowers freely, and the bright rose-red of its cymes of tubular flowers are an additional attraction. It may be grown for carpet-bedding or for the rockery in the same way as Sedum Acre, Mesembryanthemum cordatum and Alternantheras, and requires the same treatment as these. It is a native of south Africa, and has been in cultivation about thirty years, but it has only lately attracted the notice of horticulturists. Messrs. G. Paul & Sons, Cheshunt, exhibited a basket of this plant at the last meeting of the Royal Horticultural Society, when it was favorably noticed. It is as easily multiplied as Sedum Acre.

Asclepias Curassavica.—This plant is occasionally grown for its decorative character. It is also known as False Ipecacuanha, and is said to be used in the West Indies as an emetic. According to the following note, recently published in the *Kew Bulletin*, it has another and still greater value as an insectifuge: "Miss Manning would be greatly obliged if the Director would tell her what the enclosed plant is. It grows everywhere, as a weed, about the Isthmus of Tehuantepec (southern Mexico), and is used by the Indians there to keep away vermin, especially fleas. Miss Manning's friends in Mexico have tried it, and found it most successful. They make a rough broom of it and sweep the floors and walls of their huts, and find that they are not troubled with fleas for a considerable time afterward. They have tried brushing dogs with it when their coats are full of vermin, and it appears to answer the same purpose with them. The Indian name of the plant is Chilpati." The plant sent was unquestionably this Asclepias. Possibly it is known as an insectifuge to some of the readers of Garden and Forest.

Exhibition of Fruit.—The great annual exhibition of British-grown fruits arranged by the Royal Horticultural Society was again held this week at the Crystal Palace. Considering that the year has not been a good one for fruit, the display in every class was of surprising excellence. It is difficult for those who do not understand how such exhibitions are made and the special conditions under which, as a rule, the fruit shown is produced, to believe the reports from nearly all parts of the country of poor crops and inferior quality. The tables at the Crystal Palace literally groaned under the piles of superb apples, pears, grapes, peaches, plums, cherries, etc., shown as British produce. As *The Gardeners' Chronicle* remarks, it is a grand advertisement, and one that is needed to teach the populace what first-rate English-grown fruit is. Whether the populace would care to pay the price such fruit would have to realize to make it profitable is another question.

London. *W. Watson.*

Cultural Department.

A Lily-bulb Disease.

In a full account of the disease which last year attacked the bulbs of Lilies in Japan, Mr. G. Massee recently stated the following facts in the *Kew Bulletin*:

During the year 1896 a destructive wave of fungoid disease almost completely ruined the crop of Lily-bulbs grown in Japan for exportation to Europe. The first indication of this disease received at Kew was through a London dealer, who sent a large number of diseased bulbs for examination. These bulbs formed part of a consignment received from Japan in November last, consisting of 848 cases, containing 73,050 bulbs of Lilium speciosum, of the varieties album and rubrum. Out of this number only 250 bulbs arrived in a salable condition, the whole of the remainder being more or less rotten and worthless. At a later date the same firm received a second consignment of 37,590 very large bulbs of Lilium auratum, and of this quantity only 4,000 were salable. Similarly diseased bulbs, received from Japan, were afterward sent to Kew for examination from other sources. Finally, a quantity of bulbs obtained through an agent from Japan, for planting at Kew, contained a large percentage suffering from the same type of disease.

The bulbs received for investigation showed every stage of disease; in the earliest condition the base of the bulb is alone discolored and somewhat soft; this discoloration and softening of the tissues gradually spreads from the base, until finally, in the most advanced stage, every part of the bulb is of a brownish color, and sufficiently soft to admit of being readily crushed into a pulpy mass between the fingers.

Microscopic examination revealed the presence of slender, continuous, hyaline, branched hyphæ traversing the tissues in every direction; the cell-walls are never pierced, but gradually dissolved, and it is only at the last stage of the disease that the starch grains become irregularly corroded and gradually dissolved. So long as the epidermis of the bulb-scales remains intact there is no trace of mycelium or fructification on the surface, but when the tissue is reduced to a soft pulp, or when a diseased bulb is cut open, the broken surface is within twenty-four hours covered with a dense snow-white mycelium, which within three days becomes studded with numerous clusters of fruit, resembling to the naked eye miniature pins with round black heads. The occurrence of this particular form of fungus on every bulb examined suggested that it might possibly be in some way associated with the disease, and subsequent cultures and inoculations proved this surmise to be correct. The fungus grows readily as a saprophyte; the spores germinating and forming the characteristic superficial white floccose mycelium, which within a week bears an abundance of fruit, on such varied culture media as prune juice, sterilized potato, decoction of bulb scales, etc. In one experiment four spores were sown in a five per cent solution of cane sugar in water in a Petri dish, and at the end of six days the entire surface of the liquid was covered with the fungus in a fruiting condition. When spores were sown in a hanging-drop alone with a very thin section of Lily-bulb scale, it was observed that the germ-tubes could not enter the tissue through the epidermis, but that they entered readily at those points where the cells were not protected by the epidermis.

A set of experiments was also carried out, using healthy Lily-bulbs. Numerous experiments were made with other kinds of bulbs, and it was found that the fungus refused to grow on onions, however much mutilated. On the other hand, Daffodil-bulbs were very susceptible to the disease; if the roots were broken, or a wound made in the bulb, and afterward powdered with the spores, the disease showed itself within a few days, and was in due course followed by the characteristic fruit of the fungus. It was invariably found that, however much bulbs were mutilated, and then inoculated with fungus spores, submergence for a few minutes in a one per cent solution of salicylic acid or corrosive sublimate prevented the disease; in other words, all fungus spores coming in contact with the above-named solutions are destroyed, whereas the vitality of the bulbs thus treated is not at all affected.

Dr. Halsted has described a somewhat similar disease, called "soft-rot," as attacking the Sweet Potato in the United States. The fungus causing this disease, Rhizopus nigricans, Ehrh., is closely allied to the species under consideration causing the Lily-bulb disease.

In a summary Mr. Massee concludes that the Lily-bulb disease is caused by a parasitic fungus called Rhizopus necans;

the fungus cannot penetrate the unbroken tissues of the bulb, but gains an entrance through wounds, more especially broken roots; the amount of evidence forthcoming indicates that the bulbs are not diseased until after they are removed from the ground; the spores of R. necans are killed by a short immersion in a one per cent solution of corrosive sublimate or of salicylic acid. Neither of these substances have any injurious effect on living bulbs, provided they do not remain in the liquid for more than fifteen minutes.

The fungus is by no means confined to Lily-bulbs for its food; but, as experiments have proved, can live on a great variety of dead or decomposing substances; it may also occur as a parasite on other plants than Lilies in Japan, as it readily attacks and destroys Daffodil-bulbs. Judging from the enormous amount of injury caused, it would appear that the fields where the Lilies are grown must be saturated with the fungus, growing indiscriminately on various substances, and attacking the Lily-bulbs, along with other things, as a matter of course. If practicable, entirely new localities should be selected for the work. Even if this were done, great care would have to be exercised, so as not to introduce the fungus; the spores are readily conveyed from one locality to another in the soil on tools, cart-wheels, shoes, clothing, etc., in addition to being carried by wind or animals. An important point to remember is not to allow vegetable rubbish of any kind to accumulate, and all diseased bulbs should be burned and not allowed to remain on the ground, otherwise the zygospores that form on such old decaying bulbs would start the disease the following season. As little injury as possible should be done to the roots of the bulbs when they are removed from the ground, and the bulbs should be allowed to "sweat" before they are packed for exportation. If the fungus is known to be present when the bulbs are being prepared for packing, they might be placed in a solution of salicylic acid as advised. The sterilized earth in which the bulbs are packed appears very suitable for the work, and cannot be in any way considered as a cause of the disease.

Work of the Season.

SPRING-FLOWERING bulbs have all been received, and should mostly be at once planted. Long exposure to the air is injurious to all bulbs. Those intended for outdoor planting usually have to await the removal of tender bedding plants from the ground. In the preparation of the beds for bulbs it should be remembered that the soil has been more or less exhausted by summer bedding plants, and therefore deep digging and an application of thoroughly-rotted stable-manure are necessary. I have tried prepared fertilizers in Tulip-beds, but these have not proved better than stable-manure. The latter is really preferable in a stiff soil, and makes it more open and friable. The advantages of winter mulching for Tulips and Hyacinths have been questioned of late years, and in the latitude of Philadelphia it does not seem to be necessary if the bulbs are planted at the proper depth, so as to prevent their being heaved out by frost. Tulips intended to be forced for cutting can be handled most conveniently by the method used by florists; that is, by planting about fifty bulbs of one variety in a flat or shallow box, giving them a thorough watering and storing the boxes in a cold frame; here they are covered with earth to a depth of about four inches, and remain until needed for forcing.

For conservatory or house decoration several bulbs of Hyacinths or Tulips planted in an eight or ten inch pan are effective, and the same plan answers for Freesias, Daffodils and Lilies-of-the-valley. Flats of Lily-of-the-valley, for cut flowers, may be treated in much the same way as that noted for Tulips, except that the Lilies should not be covered to a greater depth than two inches. This is sufficient to prevent them from drying out, and allows the frost to penetrate readily to the pips. It is also much easier to remove the covering of earth from the boxes in frosty weather if a thin layer of long litter is shaken over the pips before covering them with earth, and there is less danger of snapping off the pips in the process of uncovering. The trimming of the roots of Lily-of-the-valley at the time of planting in either pots or boxes is another point observed by many successful growers. This permits the pips to absorb moisture more readily, and abundant water is necessary to the successful forcing of these plants.

In the forcing of Freesias and Roman Hyacinths, both admirable in the conservatory, root-growth is needed first, and, therefore, but little heat should be allowed these plants in the early stages of growth. The same rule applies to the ordinary Dutch Hyacinths.

Lilium longiflorum and L. Harrisii, which are now well started, should be brought in from the frame before hard frost comes. Moderation in watering is a good rule for these plants during the early part of the season especially. But little syringing is needed; the only insect likely to trouble them at this time is the green aphis, and this is readily disposed of with applications of tobacco-water or tobacco-dust. The large clumps of these Lilies, so much used in Easter decorations, usually comprise several plants started in small pots and afterward placed together in a large pot. This method permits the selection of plants that are all in the same condition of growth, and ensures a more even crop of flowers than would be possible if the bulbs were started together in a large pot.

Most of the Caladiums have finished their growth for this season and will be going to rest; while these shall not require much attention from this time on until spring, a watering as often as once a week or ten days will help to prevent dry rot if the pots are stored beneath a dry stage in the greenhouse.

Richardias and hybrid Amaryllis are also among the valued bulbs for winter and spring flowering, and having been properly rested may be started moderately now. Amaryllis enjoy a temperature of from sixty-five to seventy degrees; this is higher than is needed for Richardias, while both appreciate rich soil and abundant watering.

Holmesburg, Pa. *W. H. Taplin.*

The Hardy Plant Border in October.

THE borders may still be kept bright with a good selection of hardy perennials. The best and showiest plant now bearing blue flowers is Salvia azurea grandiflora. This Sage grows luxuriantly in a warm sunny spot in light soil. A thick layer of dry leaves is sufficient protection here. Sedum Sieboldii is still flowering freely. Although this pleasing plant thrives on the front row of the herbaceous border, its choice of position is a dry sunny place in the rock garden; here its stems droop gracefully over the rocks, and its pinkish flowers, which are produced in much-branched umbellate cymes and last in good condition for several weeks, are seen to better advantage.

The neat perennial Eupatorium cœlestinum, or Mist-flower, carries compact cymes of blue flowers at this time. The native Dittany, Cunila Mariana, is a neat much-branched plant with small purple flowers produced in corymbed cymes. It is attractive now in the front row of the herbaceous border, and is perfectly hardy here.

One of the neatest and showiest of the native Asters for use in the border is A. turbinellus. It is of easy cultivation and increases rapidly. Large plants may be placed about six yards apart in the back row of the herbaceous border, and their large bright blue flowers make a fine display at this time. Another distinct and showy species is A. sericeus. The slender stems of the plants, which are two feet in height, are thickly clothed with pubescent leaves of a silky white color. The flower-heads are large and the ray-flowers are of a deep violet color.

Solidago rigida is a good companion for these Asters, and takes kindly to cultivation. Another graceful and showy species of Golden-rod for the border in late autumn is Solidago Drummondii. This western species grows luxuriantly here; its drooping stems are from three to four feet long.

The white Japan Anemone, Anemone Japonica alba or Honorine Jobert, is a handsome hardy perennial when in flower. The plants are unusually floriferous this season and have healthy foliage. They are grown in a slightly shady position and somewhat moist soil. A liberal top-dressing of well-rotted cow-manure was applied to them last autumn. The white flowers of this plant are among the best we have for cutting at this time.

Ceratostigma plumbaginoides, better known in gardens as Plumbago Larpentæ, is still producing an abundance of its violet flowers and helps to brighten the border. Callirrhoë involucrata and C. verticellata, prostrate hardy perennials which belong to the Mallow family, have large violet-crimson flowers which are now plentiful. Cedronella cana, a labiate from New Mexico, of neat, erect habit, is now bearing its showy, purplish flowers. A few other desirable plants now flowering in the border are Chrysopsis villosa; the pink-blossomed Eupatorium purpureum; Polygonum Virginianum; the near relative of Helianthus, Actinomeris squarrosa, known also as Coreopsis alternifolia; the purple-flowered Boltonia asteroides; Clematis Lavalleei and C. Savatieri; Colchicums, Gaillardias, Potentilla recta, Geranium Wallichianum, Hieracium umbellatum, Aster Shortii, A. lævis, A. Novæ-Angliæ rubra and A. amethystinus.

Harvard Botanic Garden. *Robert Cameron.*

Correspondence.

Some Questions of Color.

To the Editor of Garden and Forest:

Sir,—A commentator upon Nature's beauty in a recently published book speaks of the "even yellow" which the Sugar Maple assumes in the autumn. And another writer, trying to decipher the mysteries of the coloring process, says that while every shade of the golden and ruddy hues is seen in the forest, each species of tree keeps to a tint of its own. Such careless generalizations are contradicted, of course, by the witness of any autumnal forest in eastern America, and in south-eastern New York an astonishing diversity is shown this autumn in the behavior of trees of the most prominent species.

Our forests were nourished by much rain in July, and afterward were not scorched by many burning days. Up to the time when they began to assume brighter tints their foliage, as a whole, was almost as full, as succulent, and as freshly green as in June; and now that cold nights and sunny days have alternated for a time, the untouched Maples, Oaks, and Sassafras-trees still keep their luxuriant June-like aspect, while their changed companions display their reds and yellows and browns in unusually magnificent masses; these often seem even thicker and more sumptuous than the green trees because variety in the coloring throws the richness of each branch, twig and tuft of leaves into strong relief.

This is preëminently a region of hills, range lying beyond range and shoulder rising above shoulder with only narrow strips of valley between. One must drive a good many miles up and down hill before coming out on high rolling districts whence the dim outlines of the Catskills are discerned in the far distance. And it is preëminently a region of forests. Only the more level stretches are cleared and farmed and dotted with houses and tiny villages where great Maple-trees show their most splendid hues. Elsewhere everything is woodland, broken only by a few meadows along the margin of the railroad, the little lakes and the streams, and a few partially cleared spots where hopeful or shiftless settlers or where summer residents have established themselves. It is all second-growth forest, of course. A few ancient giants reveal themselves here and there, but for the most part the lover of individual trees would find much fault with our woods. Nevertheless, the hills, when viewed as a whole, seem as beautifully clothed as they can have been by the aboriginal forest. Nowhere are there such signs of long-past burnings as we find in many parts of the Catskills or about Lake George, and nowhere such proofs of more recent devastation as are frequent in the Adirondacks. There are here no blackened stumps to declare the vandalism of man. As far as the eye can reach and the fancy can extend, the thick garment of the hills is torn only by massive outcropping ledges and precipices of rock. One may drive mile after mile, and except for the road upon which one travels and an occasional small-cleared space, the landscape appears as the Indians themselves beheld it. Yet this region is less than forty miles from New York, and only a few miles beyond begins the fertile and thickly-settled region of which the beautiful town of Goshen is the centre.

Few other regions so near a great city can show such broad effects of autumn colors, spreading out and reaching over range after range of hills. And the color is especially rich and varied here, for the admixture of evergreen trees is just sufficient to enhance that of the deciduous trees without making it spotty and confused. I have seen similar panoramas of wooded mountains in the Pennsylvania Alleghanies. But there the coniferous trees were so abundant that the effect so charming here was lost—an effect of infinitely varied yet always suave and delicately blended colors, rivaled in harmony among the works of man only by the coloring of old India shawls. There are no stiff and spiry Firs and Spruces in this region; only White Pines and Hemlocks, softer in outline and texture, and not a great many of these. The general tone of the hillsides is supplied by the yellows and browns of Oaks and Beeches, and it is accentuated in the most harmonious way by ruddier Oaks, more coppery Hickories, and Maples which show like balls of gold or tall feathers of scarlet.

Our Sugar Maples are aglow in every shade of brightest yellow, of flaming red, of clearest green and burning orange, mingling together, in the larger trees in the cleared spaces, with a brilliance exceeding that of anything else which Nature produces. The radiance of jewels is relative dullness in comparison if the sun is shining on the most gorgeous Maples in this season of brilliant coloring. And yet almost more beautiful, and, I think, less commonly seen, are certain Swamp Maples which are not yellow or red at all, but pink—pink of that shade which, if a milliner's term may be borrowed, is called "old rose."

Almost this same color appears also in the Dogwoods, together with several other colors: a dusky purple, an almost orange-red, a dull dark crimson and a pale ashes-of-roses hue. The Ash is still another tree which assumes a wide range of color, and varies between a dusty plum-color and a pale yellow. Many of the Sassafras-trees are multitudinously variegated, almost every leaf streaked with red, green and yellow, as though each was anxious to show the three prominent colors which October has chosen for its heraldic shield. Again, if we group the various kinds of Oaks together, we get a gamut of tints which runs from the darkest maroon to yellows of a golden, a copper and a brazen quality.

Perhaps some day an observer scientific enough to explore the laws of plant-growth even more minutely than they have yet been explored, and patient enough to watch the same trees carefully year after year, may, in part at least, read the riddle of these seemingly lawless variations. One thing to be studied will be the question in how far any weakness in a tree or in any of its parts accelerates the coming and affects the character of the autumnal change. We have all seen the leaves on a branch half-broken from its trunk turn brilliantly while the rest of the tree remained green. But, on the other hand, one which appears as vigorous as its fellows may turn a bright gold or blush a vivid red and stand out as a great isolated bouquet from the verdant masses about it. Does this branch also in some way and to some degree lack vitality, as the half-broken one so evidently does?

Again, if leaves turn as they dry, or dry as they turn, why are the well-watered trees in swamps so apt to be the first to show bright colors? And the effects of light need also to be studied. Here, for instance, is an Ash-leaf picked up from the ground. Some of its leaflets had partially overlapped the others, glued to them, probably, by moisture. The exposed surfaces are a soft plum-color, while the surfaces which had been hidden are a clear yellow. On the other hand, Beech-leaves which had similarly clung together I have found to be of a bright yellow color where the light had struck them, and of their normal green where they had been concealed. Light seems to have played a controlling part in these diversities, as it sometimes seems to do when only the tips of Maple-boughs grow vivid. But, on the other hand, a White Oak beginning to turn will show deep red leaves, not gathered on a single branch or tipping isolated shoots, but sprinkled singly all over the tree, and as often near its trunk and on the under side of its branches as where the sunshine falls more fully.

Tuxedo Park, N. Y. *M. G. Van Rensselaer.*

In Nature's Own Domains.

To the Editor of Garden and Forest:

Sir,—To travelers who reach the far frontier the richness of the native flora of the prairies and woodland is a surprise and pleasure. Wherever the sod is yet unturned, or the verdure unchecked by close grazing, it is like a rainbow-hued flower garden in which one may wander and gather at will and yet leave a world of bloom behind. Nor are the banks of the rivers or the shores of unfrequented ponds much behind the prairies and woodlands in the rare beauties displayed. The snow-white Water-lily floats on the still waters. A fringe of scarlet and blue and white sweeps the water's edge, where the bright-hued Cardinal-flower and Lobelia are established, while the sweet breath of the neighboring Clethra fills the air.

But on the unbroken prairie and the unfrequented woodlands are the chief surprises. Everywhere are plants and flowers unknown to us. There is a grace and charm about these wind-tossed flowers that by contrast make the ordinary flowers in trade appear ugly and stiff. Taken from their native haunts, with no longer the cloudless blue sky above them, and the loving comradeship of thousands of their own kind about them, where they no longer nod to the prairie breezes or peep through the vailing prairie grasses, the charm of many of the wildings vanishes. They are then poor and weedy, and consigned to quick oblivion by the gardener.

But the beauty of some of these denizens of the wild wood survives even in our hard, formal borders. The Lilium superbum, with its tall column of clustered nodding flowers, is rich and stately whether blowing at will on a western plain or planted in a park. Cultivated Orchids from far countries are not more beautiful than their American relative, Cypripedium spectabile. Their curiously twisted and inflated blooms, satiny white, with clouding and needle-like rays of softest pink-purple, are plentifully borne on plants transferred to a shaded hillside or water edge.

In the edge of the open woodland may be found the yellow Violet with tiny Pansy-like flowers of a hue unlike anything known in any cultivated Violets. A man of fastidious tastes once said but two flowers are golden without being hard or metallic, the yellow Rose and the wild Violet of the hedgerows. Later, in the same woodland, the Fringed Gentian is found. Blushing Rue-Anemones, deep pink Sabbatias, Lily-like Erythroniums, dainty Ferns and Dicentras, blazing Fire-pinks and glowing Golden-rods come in cheery succession from springtide to autumn.

Pineville, Mo. *Lora S. La Mance.*

A Winter Plantation.

To the Editor of Garden and Forest:

Sir,—I wish to make a small winter plantation but have not sufficient knowledge of shrubs and trees to compose a harmonious planting, and so ask for your suggestion. It is desired to make this planting on a lawn looking to the south and terminated on the street boundary by a retaining wall of rustic stone about five feet high. The space to be planted is on the end adjoining the wall and between the walk leading to the house entrance and a Maple fourteen feet from the walk, this tree being about eighteen inches in diameter. The Maple is conical in shape, the result probably of early pruning. The branches are high above the ground, so that the lawn under the tree receives considerable sunlight. The purpose is to make an agreeable winter plantation visible from the living room sixty-five feet distant from the street. There are other shrubs on the lawn.

The trees from which it is desired to make selections are Black Alder, Thorn, Cranberry-tree, common Barberry, Euonymus alata, Pyrus arbutifolia, Andromeda Mariana, Kerria, Ink-berry, Red-twigged Dogwood and Cotoneaster vulgaris.

White Plains, N. Y. *Robert A. Kutschbach.*

[The list of shrubs suggested by our correspondent is, on the whole, a good one. For the purpose he indicates Berberis Thunbergii might be added to it, as it is one of the best winter-berried shrubs in cultivation. The most showy of our Thorns in winter is probably Cratægus Crus-Galli, although perhaps this tree would be too large for such a position. Euonymus alata, although very ornamental in the autumn when its leaves turn rose color, is not a particularly desirable winter plant, as the fruit is small and inconspicuous; and Andromeda Mariana, which produces beautiful flowers, has not showy fruit.—Ed.]

Rusty Appearance of Elm Leaves.

To the Editor of Garden and Forest:

Sir,—I enclose some leaves of Ulmus Americana with the request that you will explain the rusty appearance of their under side, which I suppose is the work of some insect I have as yet been unable to detect. On my lawn and in my garden in this city are a number of seedlings of this species from three to five years old. These have flourished thus far, and some have made upward of three feet of new growth during the present season. They have had sufficient water, the entire trees having been sprayed quite frequently, but not to excess. About the first of August the leaves of nearly every one of the Elms began to show the rusty appearance of the enclosed leaves, and in some cases they have become dead, the rust showing through to the upper surface, and some have dropped off the tree. I have watched the trees closely and have been unable to detect any insects preying upon the leaves.

Some specimens were sent to Professor A. D. Hopkins, Entomologist of the West Virginia Agricultural Station, and his reply is as follows: "I have examined the leaves of Ulmus Americana enclosed in your letter to me, and while I fail to find insects of any kind, the character of the injury would indicate that it is due to the presence of a very minute mite, working on the under side of the leaves. If so the best remedy you can apply is to spray the trees with water, applying it very thoroughly and with as much force as possible. Of course, you cannot do much good now, but if you will begin next spring before the leaves are injured I think you will be able to prevent the recurrence of the trouble."

I myself fail to find any evidence of the existence of the Elm-tree beetle which has ravaged the Elm of the east. Professor Hopkins states further on in his letter that he does not ascribe the trouble to the Elm beetle. As I have said already, I have tried the remedy which he suggests, that is spraying the trees thoroughly with water, but without good effect.

The rust has apparently not affected or injured the growth of the trees, and they have made a rapid growth and appear perfectly healthy otherwise. Only a portion, perhaps one-third or one-half of the leaves, appears to be affected, and the remainder keep their fresh appearance. The leaves affected are almost invariably the older ones, but are on the new growth as well as the old. September has thus far been so warm that the trees are still growing. I note upward of two inches of new growth on some specimens since the first of September.

I am the more disappointed on account of this trouble because I have advocated the planting of Elms in the outskirts of this city, and have induced my neighbors to cultivate seedlings native to the immediate neighborhood. The soil on my lawn and garden is the regular prairie alluvium mixed slightly with coarse sand, overlaying a thick strata of yellow clay under which is the blue or tunnel clay of the region. The land was formerly cultivated, but when I took possession it had lain fallow for several years, being covered with natural prairie grass and weeds. Nothing has been done to it except to level it up with the same kind of soil, with almost no application of fertilizer. It seems to be rich enough for all kinds of vegetation, for flowers in great variety and vegetables have grown luxuriantly this season, as has the grass on the lawn proper, although but little watering has been done owing to the pressure in our water-mains. My place is eight miles from the business portion of the city and there are no gas-mains in the neighborhood, electricity or oil being used for lighting; and there are no factories near by. No external influences to cause leaf-blight are apparent. Seedlings of Fraxinus Pennsylvanica, Acer Negundo, Ulmus fulva, Fraxinus Americana, Acer barbatum, Tilia Americana, Alnus rugosa, Populus monilifera, Catalpa speciosa and others are all healthy and flourishing, and unaffected either by insects or disease, and all of these have made rapid growth since the first year, except Tilia Americana, which, though healthy, has grown very slowly.

I am much impressed with the fitness of Fraxinus Pennsylvanica for the soil and climate of this locality. Although not so rapid a grower as some of the other species named, it still makes satisfactory growth. Fifteen-year-old trees in this neighborhood have reached a height of thirty feet and a trunk diameter one foot from the ground of from six to seven inches. The great value of the species is its absolute freedom from all diseases and from the ravages of insects and vermin of all kinds. During a long residence in this section and careful study of the species (which is indigenous to this immediate neighborhood, and quite abundant along the headwaters of the north branch of the Chicago River and along the Des Plaines) I have never found the tree subject to disease or insects. The only objection to it is that it seldom grows to any great size, though fairly long-lived, and is therefore hardly suited for a street-tree where much shade is desired. It is, of course, also somewhat objectionable on account of the late development and early falling of its foliage. This tree flowers and fruits abundantly along the streets in this immediate neighborhood, and I have had excellent success in planting the seeds. I find that it bears a good deal of hard usage, though it is apparently grateful for care and cultivation. Some handsome trees of this species grow near by. The natural crown is conical, but there is no difficulty in producing a wide round head by judicious pruning.

Catalpa speciosa has been planted quite extensively in this neighborhood, and, although a native of the southern part of Illinois, it does not do well in this latitude. It flourishes for a few years, blooms luxuriantly in season, bears an abundance of fruit, but after a time sickens and dies, apparently decaying from the heart outward. The whole trunk often becomes a mere shell before the north-west gale rends it apart. It shoots quickly from the roots and makes a wonderful growth for the first two or three years, but, in my opinion, it is absolutely worthless in this section.

Alnus rugosa does well when only a small tree is desired, but it is often infested with vermin, and at times is greatly troubled with the same borer that attacks the Maple family.

If Ulmus Americana is not hereafter subject to blight and rust, as shown by the enclosed leaves, I am inclined to recommend it as the most desirable tree for planting in our streets, but I have noticed a great deal of this blight during all of this season in old as well as young trees.

Irving Park, Ill. *O. S. Whitmore.*

The leaves of Ulmus Americana have been examined with a compound microscope, and I do not find any fungus doing the work that results in the discoloration of the leaf that Mr. Whitmore has naturally enough termed "rust."

At this time of the year Elms are showing the same condition quite generally with us. As a test I went out to a tree standing near the Experiment Station building, and the first branch examined showed leaves that closely matched those which came from Irving Park, Chicago.

When this discoloration occurs in October it may well be called the phenomenon of natural death, but the cause or combination of causes that led to it in the case under consideration I am not able to name. Professor Smith thinks that insects of various sorts often hasten this decline. Lack of sufficient moisture or food material may bring about similar results.

New Brunswick, N. J. *Byron D. Halsted.*

Notes.

Friday, October 22d, has been set apart by the Superintendent of Public Instruction of Pennsylvania as Fall Arbor Day.

The manufacture of beet-sugar was begun in Rome, New York, October 6th, in the first factory operated east of the Mississippi River. The company expects to use about 20,000 tons of beets this season. Tests of beets grown in the vicinity showed from fifteen to seventeen per cent of sugar early in the season, and fully ripe beets will yield a larger percentage. Thirteen per cent is needed for profit.

Professor Cockerell writes us from Mesilla, New Mexico, that on September 22d of this year, Mr. Alexander Craw found some Bamboos, from Japan, which were about to be landed at San Francisco, to be badly infested by a small white scurf-like scale. This proved to be Aspidiotus secretus, originally described by Professor Cockerell last year from specimens taken by Mr. Takahashi in Japan. The same insect has been found by Mr. E. E. Green in Ceylon. Growers of Bamboos in this country should be on the lookout for it to prevent its getting a footing here.

In a paper read a week ago before the New York Gardeners' Society, Mr. John E. Lager gave an account of his recent experiences in collecting Orchids in South America. It was stated that Coffee plantations have taken the place of extensive forests where Orchids were formerly found. The Cattleya region has suffered most, as the elevation and temperature favorable to Cattleyas are also desirable for the Coffee-tree. The South American Andes is said to be the richest section in useful species in the world. The vagaries of Orchids as to habitat were touched upon, and the costliness of Orchids was explained in their comparative scarcity and the inconveniences attending their collection and transportation. Simplified methods of cultivation were described which have led to the more general growing of Orchids, and the sale of cut flowers was also credited with bringing these plants into popular favor.

A comprehensive and interesting account of the Establishment of Public Parks in the City of New York, read last April before the Historical Society of this city by Mr. Gherardi Davis, has recently been published under that title in a neat pamphlet intended for general distribution. After a brief statement of the necessity of public parks in cities and the desirability of guarding them against encroachments, the history of the park movement in New York City is given, beginning with the suggestion made in a letter published in the *New York Packet* in 1785 and addressed to the mayor and aldermen, in which it is stated that "there is not in this great city one proper spot where its inhabitants can enjoy with convenience the exercise that is necessary for health and amusement." The history of Bowling Green, the Battery, and the various squares and parks of the city is told from the time they were proposed until they were acquired by the city and developed as public pleasure-grounds. Facts and incidents are here brought together which are not found in any other publications with the exception of the fragmentary and disconnected records in park reports and occasional newspaper and magazine articles. Some park boards have not complete sets of reports in their own offices, and until recently no systematic effort was made to bring together sets of such reports in any of the important public libraries. Information on this subject cannot fail to be of value to persons interested in public parks, which have come to be an important factor in the development of American communities. The Park and Outdoor Art Association, of which Mr. Warren H. Manning, of Boston, is the secretary, is bringing together as complete sets of park reports and of other publications relating to outdoor art as it is possible to obtain. This particular pamphlet should be the forerunner of similar publications in other cities.

A Horticultural Department has this year been established in Berea College, at Berea, in south-eastern Kentucky, and in addition to class-room instruction there will be manual training in garden and nursery work. This introductory work will be followed by a more extensive course of study which will include the botany of cultivated plants, geology of soils, elementary agricultural chemistry and entomology. With the preparatory botanical study of the native forest-trees it is proposed to offer a short practical course in forestry as being of special value to the students. This portion of Kentucky comprises a region of low mountains originally well covered with hardwood timber and some Pine. While much of the valuable timber has been cut away near the railroads and along streams where rafting is possible, much timber of good quality still remains in more inaccessible places, and forest products must always constitute an important source of wealth in this portion of the state. The college is situated at the foot of the hills skirting the famous Blue Grass region of Kentucky, and the campus of forty acres of natural-forest park contains remarkably good specimens of White and Post Oak, Red, Black, Scarlet and Shingle Oak, Chestnut, Hickory, Sour Gum, Maple and Cherry. Such conifers as have been planted have grown remarkably well. The Horticultural Department of the college was formally inaugurated on October 5th in the delivery of a lecture on the Value of Special Education for Farmers, by Professor S. C. Mason, who is in charge of the department, and two thousand farmers in the vicinity were specially invited to attend. Sound instruction along these lines cannot fail to stimulate the farmers of that section in a more general and successful cultivation of garden, field and orchard crops and in the profitable use of woodlands.

Late varieties of peaches are still coming from New Jersey in small lots, and from western New York and the mountains of Pennsylvania. Bartlett pears held in cold storage are supplied from the Hudson River district and from Massachusetts; other pears grown in the east and now in our markets are Beurre Bosc, Beurre d'Anjou, Beurre Clairgeau and Kieffer, with the first shipments of Duchesse. Reine Claude and Copper plums, with a few Damsons and French and German prunes, are yet seen. During last week less than 51,000 barrels of apples constituted the supplies for this city. Since September 1st 162,485 barrels of this fruit have been sold here, less than half the quantity handled during the same period of last year, and the exports of apples from this country are thus far but thirty per cent of the quantity shipped up to this date in 1896. The first Catawba grapes, from western New York, are now here. Grapes comprised the larger part of forty-nine car-loads of fruits from the Pacific coast sold here during last week. Varieties of this western fruit now in season are the showy Flame Tokay; Black Cornichon, the long berries on loose, shouldered bunches; Emperor, a superior grape for shipping, with oblong, deep rose-colored berries; Black Morocco, less highly esteemed than some other sorts; White Muscat of Alexandria, with musky flavor; white Malaga, the oval yellowish green berries covered with a white bloom, and Black Ferrara, a favorite for home use and for shipping. Italian and German prunes are still coming from Idaho, and Coe's Late plums, from California. Glout Morceau and Winter Nelis were among the pears received from California, and Doyenne d'Alencon, Duchesse d'Angouleme, Beurre d'Anjou, Beurre Clairgeau, Louise Bonne of Jersey and Winter Seckels. The latest arrivals of peaches from the west include Salways, George's Late Cling, and Levy's Late, also a clingstone. Florida and Jamaica oranges and grape-fruit are in limited supply. Cargoes of fruit from the Mediterranean include new crop currants, figs and Almeria grapes, besides lemons and oranges, and quinces of very large size, from Italy.

By the death of Charles A. Dana American horticulture has lost one of its most conspicuous figures and liberal patrons, and Garden and Forest one of its most valued contributors. The keenest pleasures of Mr. Dana's later years were found in his garden at Dosoris, on Long Island, where he had gathered one of the richest collections of conifers and other hardy trees and shrubs that has been made in this country. Few men who are not professional botanists had a broader and more exact knowledge of coniferous trees, and he lost no opportunity to increase his knowledge and improve and extend his collections. Deeply interested in the future of American forests, he has always been one of the most persistent and intelligent advocates of forest preservation in this state and on the public domain; and in him the parks of this city have always found a vigorous and intelligent champion.